國立臺北科技大學 106 學年度碩士班招生考試

系所組別：2210 電子工程系碩士班甲組

第一節　計算機概論　試題

注意事項：

1. 本試題共七題，每題配分請見題目，共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

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1. Please answer the following calculation. **(10%)**
    (1.) 17 (hexadecimal) + 50 (octal) = ?? (decimal) **(5%)**
    (2.) 101 (binary) + 30 (octal) = ?? (decimal) **(5%)**

2. What is the "resolution" of one image/picture? **(5%)**

3. Please explain the difference between a Stack and a Queue. **(10%)**

4. Please use the C language to write the code to solve the Fibonacci Sequence
    in two ways. (The MAIN function should be included.) **(25%)**
    (1.) Using the Loop method. (i.e., For, While, Do···While) **(10%)**
    (2.) Using the Recursion method. **(10%)**
    (3.) Please explain the difference between the Loop method and the Recursion
        method. **(5%)**
    PS: Fibonacci Sequence: F(1)=1, F(2)=1, If n>2, F(n)=F(n-1)+F(n-2)

5. The disk is currently at Cylinder 52. If the cylinder requests are listed
    in the following order in which they were received. **(20%)**
    42, 14, 24, 68, 69, 35, 82
    (1.) Please list the order in which these requests are handled if using the
        SCAN disk-scheduling algorithm. The read/write heads are moving toward
        the higher cylinder numbers. **(10%)**
    (2.) Please list the order in which these requests are handled if using the
        SSTF (Shortest-Seek-Time-First) disk-scheduling algorithm. **(10%)**

6. Please explain the following questions about the Heap. **(10%)**
    (1.) What kind of tree is the Heap? **(5%)**
    (2.) If we implement the Heap using an one-dimensional array, please explain
        how to calculate the relationship of index values between the parent
        node and the right-child node. **(5%)**

7. Please explain the following questions about the TCP. **(20%)**
    (1.) What is the difference between Congestion Control and Flow Control?
        (10%)
    (2.) What is the difference between Go-Back-N and Selective Repeat? **(10%)**